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Letter to the Editor

Steven E. Wolf, Beth A. Shields and Charles E. Wade

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Letter to the Editor

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Dear Editor,

We read the recent paper Effect of Calorically Dense Enteral Nutrition Formulas on Outcome in Critically Ill Trauma and Surgical Patients[1] with some interest, as this has been an investigative interest of our group. The findings are very intriguing and fit our bias regarding substrate utilization in the critically ill. One of the key and perhaps most compelling differences between normocaloric and calorically dense formulae is simply the fat content; the only method to increase caloric density is to increase the lipid component in relation to carbohydrate and protein. In this study, close to double the amount of fat was delivered to the calorically dense group. Substrate delivery and utilization during critical illness, then, comes to the forefront in deciphering the results of this study. Should fat be delivered as the primary substrate, and is this beneficial or harmful? It was shown previously that glucose/carbohydrate appears to be the preferential substrate in critical illness related to poor utilization of fat with impaired oxidation and inefficient transport between pools,[2,3] which would argue against the use of fat in this population as a testable hypothesis.

We showed several years ago that low fat feeding is associated with better muscle protein accretion in a severely burned surgical population compared with an isonitrogenous isocaloric high-fat feeding, which was associated with increased endogenous insulin release.[4] Garrel and others showed that low-fat enteral feeding was associated with improved clinical outcomes in a similar population.[5] This current study now concludes that a lower fat formula is also associated with better clinical outcomes in a critically ill nonburned surgical population, providing further rationale that lower fat feeding should be considered over high-fat feeding in any critically ill surgical patient.

That being stated, this study does have some problems in design from variables that were not measured. The difference in choice of feeding regimens was likely associated with provider preference; therefore, the measured effects may be more associated with the provider than the formula. For instance, what about ventilator-weaning protocols, were they similar between providers? In addition, were these data gathered before the wide acceptance of glucose control with aggressive insulin therapy? Is it possible there is a role of insulin dosing in the normocaloric group?

In conclusion, we are happy to see the results of this study, which we propose is related to bulk substrate delivery and utilization, and not some micronutrient effect. The data presented are enticing, but by no means definitive. We wholeheartedly agree with the authors that a prospective trial is needed to assess bulk substrate utilization with a directed examination of delivery of differing percentages of the primary energy substrates of carbohydrate and fat upon overall clinical effects. Specific effects on muscle, liver, fat, and the immune system should also be examined.

Yours sincerely,

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